

**PROSTHETIC ASSEMBLY FOR THE KNEE JOINT.**

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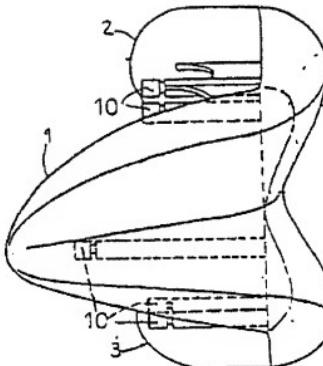
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The object of the invention relates to the technical field of medical sciences. The assembly comprises, for each knee, six types of prostheses which are specially adapted to the lesion to be treated, a basic trochleo-bicondylar monobloc prosthesis of which the shapes and profiles are determined in order to be adapted to the anatomy of the knee particularly the femoral condyles; an external trochleo-condylar prosthesis, an internal trochleo-condylar prosthesis, a rotular prosthesis, a mono-external prosthesis, a mono-internal prosthesis, each of these prostheses presenting according to the type one or a plurality of parts having the same shapes and profiles as those of the basic trochleo-bicondylar prosthesis.



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Prosthetic assembly for the articulation of the knee

The object of the invention is related to the technical sector of medical sciences.

It is known to employ for certain lesions of the knee, the prostheses intended to reconstitute the articulation between the femur and the tibia.

Generally, this type of prostheses is limited in a number; one distinguishes primarily the patellar prostheses trochléo-bicondylennes monoblocs, prostheses and the mono-compartmentaires prostheses. This limitation in a number and the shape of the prostheses, generate certain disadvantages because, according to the lesion to be treated, one can use only the type more bringing closer prosthesis so that the result obtained cannot be considered satisfactory.

Indeed, or the prosthesis under-is adapted to the treatment of the knee to carry out or the prosthesis on-is adapted to the treatment to carry out suitable for thus affect the not damaged zones. For example, the prostheses monocompartimentaires are not formed to be adapted either to the condyle interns or with the external condyle In the same way it does not exist any prosthesis trochléo-condylienne internal and external.

The problem being thus posed, the inventions' is fixed for goal to break up, and to modulate, the knee in several parts corresponding to the various possible lesions and to realize, for each one of its parts, a prosthesis adapted particularly well forms some and dimension.

To this end, one carries out a new prosthesis cast solid trochléo-bicondylienne whose forms and profiles are given to adapt has the anatomy of the knee in particular femur considered according to a représentatif sample. Starting from this basic prosthesis which is suitably equipped with studs of anchoring, one realizes:

- an external prosthesis trochléo-condylienne,
- an internal prosthesis trochléo-condylienne,
- a mono-external prosthesis,
- a mono-internal prosthesis,

- a patellar prosthesis.

One thus constructed a unit including/understanding for each knee six types different of prostheses corresponding each one to the lesion to treat. In a preferred way, each type exists in three sizes: large, small, an average.

The invention is hereafter exposed more in detail using the drawings which represent the forms and profiles of each type of prosthesis, being stressed that the illustrated prostheses correspond to the right knee and are illustrated à l'échelle- the 1 correspondent has the big size.

- Figures 1, 2, 3 and 4 relate to the prosthesis cast solid trochléo-bicondylienne, figure 1 being the anterior view, figure 2 the profile view, figure 3 the posterior view, figure 4 the top view corresponding to figure 2.

- Figures 5, 6, 7 and 8 are relative ala prosthesis trochitocondylienne intern, figure 5 being the anterior view, figure 6 the profile view, figure 7 the posterior view, figure 8 the top view corresponding to figure 6.

- Figures 9, 10, 11 and 12 are relative has the external prosthesis trochléo-condylienne, figure 9 being the anterior view, figure 10 the profile view, figure 11 the posterior view, figure 12 the top view corresponding to figure 10.

- Figures 13, 14, 15 and 16 relate to the mono-external prosthesis, figure 13 being the anterior view, figure 14 the profile view, figure 15 the posterior view, figure 16 top view corresponding to figure 14.

- Figures 17, 19 and 20 relate to the prosthesis mono-intern, figure 17 being the anterior view, figure 18 the profile view, figure 19 the posterior view, figure 20 the top view corresponding to figure 18.

- Figures 21, 22, 23 and 24 are relative to the

patellar prosthesis, figure 21 being the anterior view, figure 22 profile view, figure 23 the posterior view, figure 24 the top view corresponding to figure 22.

The prosthesis cast solid trochléo-bicondylienne illustrated in figures 1 to 4 includes a part (1) which acts as patellar shield, prolongs in a perpendicular plan or appreciably perpendicular by shaped half-lobes (2) and (3) separated by a notch (4) letting remain a common part (5) between the aforementioned lobes (2) and (3). In the case of the right knee, the lobe (2) is profile in section to correspond to the average radius of curve of the internal condyle. Conversely, the lobe (3) is profiled in section to correspond in section to the average radius of curvature of the external condyle.

The prosthesis trochléo-condylienne intern (figures 5, 6, 7 and 8) includes the patellar shield (1) prolonged of only with dimensions, in a perpendicular plan or appreciably perpendicular, by the lobe (2) whose profile in section corresponds to the average radius of curvature of the internal condyle. To the opposite of the lobe (2), the common part (5) is cut in bevel (6) according to a given angle corresponding to the normal patellar race.

The external prosthesis trochleo-condylienne (figures 9 10,11 and 12) is similar to the prosthesis trochléo-condylienne intern, the only difference residing in the establishment of the lobe (3) and the cut in bevel (7) which are reversed.

The patellar prosthesis (figures 21, 22, 23 and 24) is produced starting from the shield condylien(d) prolonged in a perpendicular plan or appreciably perpendicular, by the common part (5) of which side ends (8) and (9) are crossed in bevel to correspond respectively to the external patellar race and intern.

In an important way, the length of the patellar shield (1) is given to receive all the possible anatomies (high or low kneecaps).

The shown mono-external prosthesis figures 13, 14, 15 and 16 includes only the lobe (3) whose profile in section corresponds to the average radius of curvature of the external condyle.

Conversely, the prosthesis shown mono-intern figures 17,15, 19 and 20, includes/understands only the lobe (2) whose profile in section corresponds to the average radius of curvature of the internal condyle.

In an important way, each prosthesis presents directly or in a brought back way, according to the nature of material composing it, the studs of anchoring (10). These studs are suitably positioned in overflow of the internal face of the prostheses to resist the various parts of pressure to which the prosthesis is subjected

According to the invention, for each type of prosthesis, the studs (10) have the same establishment and the same form. Two studs are formed in overflow of the internal face of each lobe (2) and (3), while a stud is formed in overflow of the internal face of the common part (5) relating to the patellar shield. The length of the stud of the patellar shield is greater than that of the studs relating to the lobes (2) and (3).

The studs of anchoring of the lobes (2) and (3) are separated and possibly prolonged laterally by braced fabrics (11).

According to the invention, one thus created six types of prostheses for each knee, each standard being realized of preference in three sizes, that is to say on the whole 36 prostheses.

The invention is not limited at all to that of its modes of applications either but to those of the modes of realization of its various parts having more especially been indicated; it embraces on the contrary all the alternatives of them.